

Case 2994

Nothosaurus Münster, 1834 (Reptilia, Sauropterygia): proposed precedence over *Conchiosaurus* Meyer, [1833]

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Abstract. The purpose of this application is to conserve the well known generic name *Nothosaurus* Münster, 1834 for a genus of sauropterygian reptiles by giving it precedence over the subjective synonym *Conchiosaurus* Meyer, [1833], which predates it by a few months. The genus *Nothosaurus* is known from the upper Lower to uppermost Middle Triassic of Europe and the Middle East. The type species, *N. mirabilis* Münster, 1834, was first described on material from the lower Upper Muschelkalk (Late Anisian) at Bayreuth. The genus *Conchiosaurus* is known from a single incomplete skull from the Saurierkalk of Esperstädt (Germany), which corresponds to the base of the Middle Muschelkalk, Upper Anisian.

Keywords. Nomenclature; taxonomy; Reptilia; Sauropterygia; Lower-Middle Triassic; *Nothosaurus*; *Conchiosaurus*.

1. Meyer ([1833], p. 8, pl. 1, figs. 3 and 4) established the new nominal genus and species *Conchiosaurus clavatus*, based on a single, incomplete and badly crushed skull from the Triassic Saurierkalk, which corresponds to the base of the Middle Muschelkalk, Upper Anisian, at Esperstädt, Germany. The specimen, catalogue no. AS I 1446, is housed in the Bayerische Staatssammlung für Paläontologie und Historische Geologie in Munich. The date 1833 is given on the wrapper of *Museum Senckenbergianum*, Band 1, Heft 1 (pp. 1-96, pls. 1-5), in which Meyer's paper was included (pp. 8-14), whilst 1834 is given on the front page of the Heft. The accepted dates of publication of the *Museum Senckenbergianum* were set out by Stearn (1938, p. 155); that for Band 1, Heft 1 was given as '1833 (probably October)'.

2. In 1834 Münster (p. 525) proposed a new nominal genus and species *Nothosaurus mirabilis*, based on an articulated but incomplete skeleton and a tooth-bearing fragment of a lower jaw from the lower Upper Muschelkalk at Bayreuth, Germany. This specimen, catalogue no. BT 1000, is housed in the Oberfränkisches Erdgeschichtliches Museum in Bayreuth. Münster (p. 526) mentioned Meyer's ([1833]) taxon but considered his to be distinct.

3. In a revision of *Conchiosaurus clavatus*, Meyer (1855, p. 107) recognised the similarity between *Conchiosaurus* and *Nothosaurus*, noting (in translation) 'should the two genera concur, I would retain the name *Nothosaurus* although it is younger,

because it has been widely accepted in the meantime'. Thus the author himself of *Conchiosaurus* gave precedence to Münster's name *Nothosaurus*.

4. The name *Conchiosaurus* was used as valid by a number of authors who emphasized the genus's affinities with *Simosaurus* Meyer, 1842 (see, for example, Quenstedt, [1851], p. 135; Zittel, 1889, p. 484). Following Quenstedt and Zittel, Huene (1948, 1956) listed the genus *Conchiosaurus* within the family SIMOSAURIDAE. The only information that Huene (1956, p. 412) gave in his description of *Conchiosaurus* is that (in translation) 'the palate, dentition and form of the skull are similar to *Simosaurus*'; he gave no reference to fossil material and relied only on the work of previous authors. Tatarinov & Novoshilov (1964) included *Conchiosaurus* in their list of the SIMOSAURIDAE. Like Huene, they made no reference to fossil material. Huene (1956) and Tatarinov & Novoshilov (1964) believed *Nothosaurus* to be a distinct taxon (see para. 5 below). Lydekker (1889) also retained names for both *Conchiosaurus* and *Nothosaurus*, believing the two taxa to be closely allied.

5. Following Meyer's (1855) suggestion (para. 3), most authors have adopted *Nothosaurus* as a valid generic name, among them Edinger (1921), Arthaber (1924), Schmidt (1928), Kuhn (1934, 1964), Huene (1956), Romer (1956, 1966), Tatarinov & Novoshilov (1964) and Carroll (1988). Sanz (1984) used the name *Conchiosaurus* but considered the two taxa to be most likely congeneric; he cited *Conchiosaurus* with the date 1842 and used the family-group name NOTHOSAURIDAE, apparently (and erroneously) believing the name *Nothosaurus* to have priority.

6. Kuhn (1934) used *Nothosaurus* as a valid name. Later he (Kuhn, 1964) revived the genus *Conchiosaurus*, suggesting that if *Conchiosaurus* and *Nothosaurus* were synonyms, the latter name would have to be conserved.

7. In their review of the genus *Nothosaurus*, Rieppel & Wild (1996) recognize the 'unequivocal' synonymy of *Nothosaurus* and *Conchiosaurus*. They acknowledge the latter as the senior synonym but use *Nothosaurus* as the valid name. In addition to the authors cited in para. 5 above, a list of more than 40 references from the last 50 years, in which the name *Nothosaurus* has been used as valid, has been given to the Commission Secretariat. The name *Conchiosaurus*, in contrast, has remained relatively unused and we propose that *Nothosaurus* be given precedence over it.

8. The validity of the species *Conchiosaurus clavatus* Meyer, [1833] is a difficult problem. The single specimen of the taxon is diagnostic at generic level, but not at specific level. A case could be made, on the basis of the specimen's overall size and its geographic and stratigraphic occurrence, for the name *clavatus* to be considered a senior synonym of *Nothosaurus marchicus*, but Rieppel & Wild (1996) chose to treat the species name as a nomen dubium.

9. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary powers to give precedence to the name *Nothosaurus* Münster, 1834 over the name *Conchiosaurus* Meyer, [1833] whenever the two are considered to be synonyms;
- (2) to place on the Official List of Generic Names in Zoology the following names:
 - (a) *Nothosaurus* Münster, 1834 (gender: masculine), type species by monotypy *Nothosaurus mirabilis* Münster, 1834, with the endorsement that it is to be given precedence over *Conchiosaurus* Meyer, [1833] whenever the two names are considered to be synonyms;

- (b) *Conchiosaurus* Meyer, [1833] (gender: masculine), type species by monotypy *Conchiosaurus clavatus* Meyer, [1833], with the endorsement that it is not to be given priority over *Nothosaurus* Münster, 1834 whenever the two names are considered to be synonyms;
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *mirabilis* Münster, 1834, as published in the binomen *Nothosaurus mirabilis* (specific name of the type species of *Nothosaurus* Münster, 1834);
 - (b) *clavatus* Meyer, [1833], as published in the binomen *Conchiosaurus clavatus* (specific name of the type species of *Conchiosaurus* Meyer, [1833]).

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References

- Arthabar, G. von. 1924. Die Phylogenie der Nothosaurier. *Acta Zoologica, Stockholm*, 5: 439–516.
- Carroll, R.L. 1988. *Vertebrate paleontology and evolution*. xiv, 698 pp. Freeman, New York.
- Edinger, T. 1921. *Über Nothosaurus*. 74 pp. Unpublished Ph.D. Thesis, Frankfurt am Main.
- Huene, F.R. von. 1948. *Simosaurus* and *Corosaurus*. *American Journal of Science*, 246(1): 41–43.
- Huene, F.R. von. 1956. *Paläontologie und Phylogenie der Niederen Tetrapoden*. xii, 716 pp. Fischer, Jena.
- Kuhn, O. 1934, 1964. *Fossilium Catalogus*, vol. 1 (Animalia), part 69 (Sauropterygia). 127 pp. (1934); part 106 (Sauropterygia), Supplementum 1. 72 pp. (1964). Junk, s'Gravenhage.
- Lydekker, R. 1889. *Catalogue of the fossil Reptilia and Amphibia in the British Museum (Natural History)*, part 2 (Ichthopterygia and Sauropterygia). xxi, 307 pp. British Museum (Natural History), London.
- Meyer, H. von. [1833]. Beiträge zur Petrefactenkunde. *Conchiosaurus clavatus*, ein Saurus aus dem Muschelkalke von Bayreuth. *Museum Senckenbergianum. Abhandlungen aus dem Gebiete der beschreibenden Naturgeschichte*, 1(1): 8–14.
- Meyer, H. von. 1855. *Zur Fauna der Vorwelt*, part 2 (Die Saurier des Muschelkalkes mit Rücksicht auf die Saurier aus buntem Sandstein und Keuper). Lieferungen 5–6. Pp. 81–120. Keller, Frankfurt am Main.
- Münster, G. 1834. Vorläufige Nachricht über einige neue Reptilien im Muschelkalke von Baiern. *Neues Jahrbuch für Mineralogie, Geognosie, Geologie und Petrefaktenkunde*, 1834: 521–527.
- Quenstedt, A. [1851]. *Handbuch der Petrefaktenkunde*, part 1. Pp. iv, 1–256, pls. 1–19. Laupp, Tübingen.
- Rieppel, O. & Wild, R. 1996. A revision of the genus *Nothosaurus* (Reptilia, Sauropterygia) from the Germanic Triassic, with comments on the status of *Conchiosaurus clavatus*. *Fieldiana (Geology)*, n.s., 34: 1–82.
- Romer, A.S. 1956. *The osteology of the reptiles*, Ed. 3. xxi, 772 pp. University of Chicago Press, Chicago.
- Sanz, J.L. 1984. Osteologia comparada de las familias Nothosauridae y Simosauridae (Reptilia, Sauropterygia). *Estudios Geológicos*, 40(1–2): 81–105.
- Schmidt, M. 1928. *Die Lebewelt unserer Trias*. 461 pp. Rau, Öhringen.
- Stearn, W.T. 1938. The 'Museum Senckenbergianum': its dates of publication. *Journal of the Society for the Bibliography of Natural History*, 1(5): 155–156.
- Tatarinov, L.P. & Novoshilov, N. 1964. Sauropterygia. Pp. 309–337 in Orlov, A.J. (Ed.), *Fundamentals of paleontology*, vol. 12. 721 pp. [In Russian].
- Zittel, K.A. von. 1889. *Handbuch der Paläontologie*, Abt. 1, (Palaeozoologie), Band 3 (Vertebrata), Lieferung 3. Pp. 437–632. Oldenbourg, Munich & Leipzig.